ER Site No. 9: Burial Site/Open Dump (Schoolhouse Mesa)

ADS: 1334
Operable Unit: Central Coyote Test Area

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Site History

ER Site 9, identified as Burial Site/Open Dump in the Hazardous and Solid Waste Amendments (HSWA) Module, lies on approximately 1.86 acres of federally owned land controlled by the United States Air Force (USAF). This inactive site is located adjacent to, and within, an arroyo channel approximately 1,800 ft east of the Schoolhouse Building on the north side of Demolition Range Road, where a north-trending dirt road crosses the arroyo channel and splits into two dirt trails immediately east of the site. Site 9 forms the southwest corner of adjacent Solid Waste Management Unit(SWMU) 61A and encompasses features on the north and south arroyo banks as well as in the arroyo channel. The mean elevation of the site is 5,845 ft above mean sea level (amsl).

The original description of Site 9 included three "debris mounds" of which only the largest, Mound 1, on the north bank of the arroyo was later determined to be a true soil-covered debris burial mound. Mound 1 was approximately 175 ft long and up to 8 ft high above the surrounding grade. The other two "mounds" were simply debris, dumped as either a discreet pile in the arroyo channel (Mound 2) or as debris scattered along the south bank of the arroyo channel (Mound 3). Mound 2 debris consisted of a tangled mass of barbed wire, empty paint cans, ceramic electrical insulators, mortar shell storage cases, a military bomb rack, vehicle parts, a shrapnel-riddled iron plate, pieces of wood and metal, and building rubble (cinder blocks, glazed masonry tiles.) Mound 3 debris consisted of wooden crate remnants, empty paint cans, expended smoke grenades, an empty 55-gallon (gal) drum containing a grate that appears to have been used as a grill, and other miscellaneous solid waste.

A burial pit containing radioactively-contaminated materials was discovered during a voluntary corrective measure (VCM) conducted between 1996 and 1998. The burial pit was located about

30 ft northeast of the south end of Mound 1 and was about 30 ft in diameter and had debris materials buried to a depth of about 4 ft.

No specific information on site activities at SWMU 9 or adjacent SWMU 61A was discovered until a retired worker confirmed that SWMU 9 was used as an open dump for test debris and trash generated in the local area.

A 1951 aerial photograph shows the first evidence of manmade features at ER Site 9. A 1967 aerial photograph shows an access road between ER Site 61A, Blast Area, and ER Site 9. A 1971 aerial photograph depicts a debris mound that appears similar to Mound 1. Vegetation gradually reclaimed the roads and the site during a period of inactivity between 1971 and 1991. Other than Mound 1, no additional waste management units are shown in aerial photographs of the site.

Previous Investigations - ER Site 9 was identified during investigations conducted under the Comprehensive Environmental Assessment and Response Program (CEARP) and the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA). However, no records regarding waste disposal at this site were found during either of these investigations.

In early 1993, Sandia National Laboratories / New Mexico (SNL/NM) Radiation Protection Offices (RPO) personnel conducted a beta/gamma radiation survey at the site with a Geiger-Muller detector with a pancake probe. No activity above background was detected near any of the debris mounds, including a cavity containing corrugated metal exposed in debris Mound 1. In addition, SNL/NM RPO personnel recorded no radioactivity readings above background activity at a shallow, crater-like feature northeast of debris mound 1.

In November 1993, Kirtland Air Force Base (KAFB) Explosive Ordinance Disposal (EOD) conducted a surface visual Unexploded Ordinance / High Explosives (UXO/HE) survey of Schoolhouse Mesa test areas. This survey, which was completed in conjunction with ER Sites 20 and 61, included ER Site 9. UXO/HE material identified and removed during this survey was associated with recent U.S. Department of Defence (DoD) war game exercises conducted throughout the Schoolhouse Mesa area and included one live groundburst simulator and one lb. of HE compounds. Ordnance debris that was collected and removed included six smoke grenades, two flare-illuminating cartridges, and three 40-mm white star parachute cartridges. No UXO/HE was found on the surface of the three debris mounds at ER Site 9.

In February 1994, RUST Geotech Inc. conducted a Phase I surface gamma radiation survey at ER Site 9. One point-source anomaly was detected at 18 microR/hr in the southeast corner of Mound 1. Background activities were measured at approximately 14 microR/hr. The radioactive material was attributed to activities conducted at ER Site 61A. Yellow material near Mound 1 was thought to be radioactive uranium oxide. It was believed that the radioactive material was deposited over the ER Site 9 area by activities at ER Site 61A, and that radioactive material was not disposed of in the debris mounds.

VCM activities were conducted at ER SWMUs 61A and 9 during March 1995 and February, March, May, July, and October 1996. Point sources identified during the Phase I survey were removed in March 1995. In February 1996, SWMU 61A was resurveyed on 6-foot centers (100-

percent coverage), additional point and area sources that were discovered were remediated as the schedule permitted in February, March, May, and July 1996.

In June 1996, ER Site 9 was sampled according to the strategy, methodology and procedures outlined in the Operable Unit (OU) 1334 RCRA Facility Investigation (RFI) Work Plan. Trenches were excavated across the three mounds to determine the extent, possible types of buried debris, and to collect samples for characterization. The three trenches across Mound 1 showed that only the southern end contained buried wastes, while the northern end was composed only of burlap bags filled with crushed granite. A shallow depression along the northwest side of Mound 1 indicated that it might have been used as protective berm during testing at SWMU61A. Burned and buried debris exposed in trenches 2 and 3 at the south end of Mound 1 consisted of shrapnel-riddled, galvanized steel and metal-plate test stands, steel I-beams, wire and cable, metal tubing, plastic sheeting, concrete pieces, cans and bottles, burned wood and paper, and glazed tile fragments. The trench excavated across Mound 2 revealed that it was simply a pile of debris dumped in the arroyo and was not an extension of Mound 1. The trench into Mound 3 showed that this feature was a natural terrace deposit with debris scattered on the surface rather than a burial mound. The analytical data indicated that Mound 1 contained radioactive materials, mainly depleted uranium (DU) as scattered "pockets" and surface contamination on some debris pieces, volatile organic compounds (VOCs), and HE residues. A VCM was planned to excavate, characterize, and dispose of the materials in the south end of Mound 1, and to characterize and dispose of the materials from Mounds 2 and 3.

In October of 1996, SNL/NM began to excavate Mound 1 as a VCM and to segregate radioactive materials for proper disposal. A backhoe was used for the excavation because it was evident that the lateral and vertical extent of contaminated materials would exceed the capabilities of manual excavation and clean-up procedures. The VCM was stopped after 10 days when UXO (a rocket warhead and a 5-in. diameter artillery shell) was encountered in the excavation. The open excavation was covered with soil and additional safety precautions and procedures were scheduled for implementation. However, due to budgetary restrictions, the VCM could not be resumed until June 1998. The Mound 1 excavation and surveying continued for one week in June and the first two weeks of August 1998 when it was finally completed. A small burial pit containing DU-contaminated soil and debris was also discovered about 10 feet east of Mound 1. The pit was excavated during the June 1998 portion of the VCM. The debris scattered in the arroyo (Mound 2) and on the arroyo terrace (Mound 3) was picked-up and surveyed for radiation in August 1998. No radioactive contamination was found on the materials from Mounds 2 or 3.

When the VCM was completed in August 1998 a total of eighteen 55-gallon drums of mixed waste (soil and small debris pieces), approximately 50 cubic yards of scrap metal (excavated from Mound 1 and picked up from Mounds 2 and 3), and 520 cubic yards of soil had been excavated and surveyed from Mound 1 and the burial pit.

The 18 drums of contaminated soil and debris were sampled in September 1998 and determined to be mixed waste. These waste drums were shipped to Envirocare of Utah for disposal by SNL/NM Waste Management.

In July 1999 following the VCM, the site was resampled including the excavated area under the south end of former Mound 1 and the burial pit.

Between August and October 2000, the 520 cubic yards of excavated soil were sifted through a grizzly to remove as much debris as possible, mixed with manure and regraded onto the site surface. In November 2000, the site and excavation was reseeded and covered with straw anti-erosion mats. The remaining scrap metal from the mounds and the debris removed from the soil piles was taken to the KAFB landfill for disposal.

Constituents of Concern

Metals
Volatile Organic Compounds (VOCs)
Semivolatile Organic Compounds (SVOCs)
HE
Radionuclides.

Current Hazards

There are no current hazards at this site related to residual contamination remaining in the surface or subsurface soils.

Current Status of Work

RFI Work Plan was submitted to the U.S. Environmental Protection Agency(EPA) in November 1994.

A VCM to remove radioactive point and area sources was conducted between July and October 1996.

A VCM to excavate and remove radioactively-contaminated material from Mound 1 was conducted between October 1996 and August 1998. Debris from Mounds 2 and 3 was also surveyed for subsequent disposal.

The 520 cubic yards of excavated soil was processed to remove admixed debris and regraded onto the site surface. The admixed debris and the scrap metal from Mounds 1, 2, and 3 was taken to the KAFB landfill for disposal in November 2000.

Site 9 was proposed for a risk-based NFA in September 2000. This site was accepted for No Further Action by NMED on December 5, 2000.

Future Work Planned

While no further fieldwork is planned at this site, various administrative tasks, such as site file closure, remain.

Waste Volume Estimated/Generated

The rad VCM mentioned above generated five 55-gallon drums of radioactive waste which were removed in FY96. The Mound 1 VCM (excavation) generated a total of 18 drums of mixed waste, fifty cubic yards of scrap metal, and 520 cubic yards of nonhazardous soil mixed with small debris pieces. Twenty cubic yards of scrap metal were removed in FY 97. The mixed waste was disposed of in 1998. In October-November 2000, the 520 cubic yards of soil were sifted through a grizzly to remove as much admixed debris as possible and the soil was regraded onto the site surface. The site and excavation was reseeded and covered with straw anti-erosion mats. The estimated 10 cubic yards of debris separated from the soil and was released for disposal in the KAFB landfill in November 2000.

Information for ER Site 9 was last updated Jan 29, 2003.